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An Evaluation of Out-Migration on Labour Availability in the Fishing Industry of Ghana

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Abstract

Movement across boundaries, both internally and externally, has become a truly global phenomenon. Migration is not a recent phenomenon; it has existed in some form or another throughout the history of humanity. The objective of the study was to examine the effect of rural-urban migration on labour in the fishing industry in keta Municipality. The study used a mixed-methods approach as its research strategy. Mixed method research approach was adopted for the study. The population of this study comprised out-migrant fishing household heads, chief fishermen, and fishmongers in the study region were therefore the main focus because they had a thorough understanding of the objectives of the research. A self-selection sampling strategy was used to choose 255 out-migrant fishing households for the sample size. Data for the study were gathered using questionnaires, semi-structured questionnaires, interviewing protocols, and focus group discussions. Thematic analysis was used to examine the qualitative data, while SPSS version 20 was used to evaluate the quantitative data. 56 percent of respondents agreed with the NELM and push-pull perspective of migration that suggested that before choosing a household member to migrate, individuals and household heads weigh the costs and benefits of the conditions at the destination and the origin. This finding is consistent with the findings of the survey and supports the idea put forth by NELM and the push-pull perspective. The study found out that, the rural-urban migration in the Keta Municipality especially in the study region was initiated by the push-pull factors which support the neoclassical theory of migration. It was also identified that, to maximize income and diversify livelihood strategies, the young people in the study area migrates to urban areas and nearby nations to enhance their standard of living which also confirms the postulations of NELM theory. The findings again confirm that, outmigration has effects on fish production as well as labour in the study area. It is recommended that fishermen and women should be given some financial support from Government, NGO's, Fishery Commission and other donor agencies to help expand and strengthen their fishing operations. Again, providing formal and informal educational facilities and fishing inputs as subsidies can help the local fishing industry get a better understanding of its own industry. It is also recommended that, the Volta Basin Research Project (VBRP), the Ministry of Fisheries, the Fisheries Department (FD), and the government should all share responsibility for finding answers to the difficulties that the fishing community is currently experiencing.

Keywords: Effects**,** Out-Migration, Labour, Availability, Fishing Industry

1. INTRODUCTION

The global fishery sector, which cuts across rural and urban areas, is a paramount source of socio-economic value for the growing world economies of which Africa is not exceptional. The sector is critical in sustaining household

livelihoods and poverty reduction among individuals who are engaged in its operation (Goldbach, Schlüter & Fujitani, 2018). Fish has long been preferred, consumed and purchased at a cheaper cost globally for its richness in animal protein (FAO, 2019). Statistics published by the Food and Agriculture Organization stipulate that, in Africa alone, inland fisheries support the livelihood of about 22.7 million fishermen, with the emphasis being that most African countries are landlocked areas (FAO, 2019). In Ghana, the marine fishery sector contributes a lot to the livelihood and development of towns and communities that operate it. The fishery sector in the country stretches from Half Assini in the west to Aflao in the eastern coastal belt of the country. The marine fishery sector in the country recorded 1.4 and 4.3 percent of the gross domestic product in 2009 and 2013, respectively, and during the first quarter of 2020, 14.2 percent was estimated (Ghana Statistical Service, 2013a).

The marine fishery in Ghana is strongly linked by two major seasonal upsurges that occur annually in the country's coastal areas. The major upsurge normally occurs in June–July and late September–early October, while the minor upsurge also occurs in either December, January, or February (Nunoo, Asiedu., Amador Belhabib Lam Sumaila & Pauly, 2014). The upsurge normally increases the volume of inland water source as in the case of the Keta Lagoon and other rivers, and in this way more fishes are sourced. High biological activities within the fish take place, yielding a high increase in fish production because most fish spawn during such a season (Lamptey & Ofori-Danson, 2014). After the major upsurge, fishing becomes unattractive as fishermen find it difficult to get fish for both domestic and external use, thereby venturing into other sectors of work aside fishing.

The fishery sector in Ghana is affected by the phenomenon of out-migration of people within the fishing communities, which has resulted in a labour shortage in its operationalization (Béné, 2006). Labour unavailability in the sector has reduced due to labour out-migration, with the majority of such out-migrants engaging themselves in other sectors of work that doesn't relate to any of the fishing activities in their destinations. Majority of these labours are hampered by factors such as water body fluctuations, which affect those who engage in lagoon and river fishing; the presence of plastic waste in water bodies; inadequate premix for powering outboard motors, low fish catch due to climate changes and insufficient financial support from the fishery commission or donor agencies in and outside the local areas which has led to their exit from the sector (Ansah, 2021).

Migration has become purely a global phenomenon, with the movement happening both internally and externally across the borders of a country. The phenomenon of migration is not a new trend but has been part of humanity from ancient times till current (Tigere & Ndlovu, 2018). Migration has made a significant contribution in shaping our current societies as a way of attracting more labours for small and large-scale industries, which has become part of our shared history (Awumbila Teye., & Yaro 2017). The migration phenomenon has been regarded as one of the vital demographic tools that affect societies in both positive and negative dimensions. The estimated international migrant's population in 2019 was estimated to be 272 million, of which 58 percent of such were males and 42 percent were females (UN Desa, 2019).

Individuals in Ghana migrate internally and externally based on socio-economic and political factors specific to their location. These factors of migration can be better understood using disciplinary approaches: Sjaastad's theory of human investment and Lee's theory of migration. One of the tenets of Revenstein's law of migration is that, the majority of these migrants move from rural to urban areas where their labour is most needed. Because the majority of internal migrations in Ghana are from rural to urban wealthy sectors, this concept appears to be extremely applicable (Awumbila, 2015b; Ghana Statistical Service, 2013a). Migration has immensely aided in an area's growth and a significant increase in the labour force, particularly in manpower initiatives, but it has also significantly decreased the labour supply in the rural areas, which is negatively impacting those rural economies, especially in areas where fishing and farming are practiced most.

1.2 Effect of rural-urban migration

Rural-urban migration has developed into a complex issue that affects both the source and the final destination of the migrants (Tacoli, McGranahan & Satterthwaite, 2015). The majority of the damage is done to rural areas since they lose their young people and adults who are expected to stay and help the local economy flourish, particularly in the fishing industry. Children and the elderly who are unable to actively participate meaningfully in fishing and associated activities are left to fend for themselves in the villages (Anaglo, Sakyi-Dawson, Boateng & Mahama 2014). The fall in fish productivity in fishing villages, with a focus on the Keta municipality, has been attributed to this loss in the rural labour force. According to this hypothesis, migration may have a negative impact on fishing since there is a severe shortage of home labour (Ayinde Torimiro, & Koledoye 2014). The elderly and children in the origin are now left to complete the activities that were reserved for the working force to complete at the origin since more people,

especially those who are largely engaged in fishing, migrate to urban sectors to earn a better livelihood, as viewed by the migrants (Angba, 2003). This unquestionably widens the labour gap between urban and rural areas, which lowers fishing productivity. As more individuals relocate to metropolitan regions in search of employment options other than fishing, the challenges associated with this trend will be the loss in fish production, marketing, and sales. The output of out-migrant fishing households will drop where the out-productivity migrants' output was relatively higher than that of the other members of the household because outmigrant fishing households typically have a restricted labour force that is engaged in fishing and its related activities (Anaglo et al., 2014). This is even worse if the out-of-country immigrant is more capable, educated, and capable of handling household tasks than other family members. The main reason for human migration, according to the neoclassical theoretical framework, is that attractive conditions at the eternal place entice people to migrate, while poor conditions at the origin drive people away.

Migration's impact can vary depending on the location because cultures and value systems change over time and space (Venturini & Lanati, 2018). As a result, the impact can be either beneficial or negative. If remittances from the migrants flow often and these remittances are invested in fishing-related enterprises, the severe household labour scarcity brought on by their movement may be unfavorable during the fishing season but may later improve (Adiku and Khan, 2018; Nnaji and Nweze, 2016). However, if remittances sent and received by out-migrants are used effectively for their intended purpose, the impact on labour migration and the fishing sector near the source will be reduced. Remittances from emigrants have developed into a different source of income that makes up for the lack of labour in rural fishing households (Nnaji and Nweze, 2016). Remittances help to mitigate the negative shock experienced by the households of out-migrants and have increased opportunities for livelihood, which is why migration is viewed as a strategy for both insurance and survival.

1.3 Neo-classical Equilibrium Perspective

The best-known scientific contribution on migration was two articles written by the geographer Ravenstein in the nineteenth century (1885 and 1889). He claimed that migration was mostly caused by economic factors and considered it an integral aspect of development. Furthermore, it was thought that variables like distance and population density would have an impact on migration patterns (Skeldon, 2014). People are predicted to move from low-income to high-income earning levels and from highly crowded places to sparsely inhabited areas, according to

this perspective, which supports the general idea that migration movements tend to a certain spatial-economic equilibrium (Castles & Miller, 2003). The microeconomic and macroeconomic levels serve as the foundation for the neo-classical migration theory or model (Abreu, 2012).

The idea sees migrants as autonomous, logical individuals who choose to relocate based on a cost-benefit analysis at the micro-level (De Haas, 2007). They are anticipated to go to a location where they can be most productive and, consequently, where they can earn the best salaries, assuming freedom of choice and complete access to information (De Haas, 2008). This ability is based on the particular abilities a person possesses and the particular structure of the labour markets at the destination where the immigrant finds himself or herself. Neo-classical economic theory, on the other hand, explains migration at the macro level through disparities in labour supply and demand (De Haas, 2007). According to neoclassical economic theory, spatial inequalities in the availability of labour are the main cause of migration. Workers shift from low-wage, labour-surplus regions to high-wage, labourscarce regions as a result of the wage differences that result (Todaro 1969; Todaro 1980). There will always be labour competition between labour-rich and capital-rich areas (Kurekova, 2011; Wiesböck, Verwiebe, Reinprecht & Haindorfer., 2016).

Rural-urban migration will continue to maximize in the world as long as predicted urban income exceeds predicted rural income (Todaro, 1980). As a result, the sending communities of migrants are strongly encouraged to use migration as a means of diversifying their economies, and as a result, the remittance-receiving areas are able to reduce income disparities and wage gaps (Abizu, 2018). Remittances are now being considered as a potential replacement for domestic income production as a result of this situation.

Neo-classical migration theory has also come under criticism for being unhistorical and Eurocentric, assuming that migration (i.e., the transfer of labour from agricultural rural to industrial urban sectors) plays the same facilitating role in the "modernization" of current developing countries as it did in nineteenth- and twentieth-century Europe (De Haas, 2007). By examining wage differences at the macro-level within and between nations as well as at the micro-level of individual choice, the neoclassical theory gives a clear and testable hypothesis for understanding migratory patterns.

In their study of international migration, Massey, Arango, Hugo, Kouaouci, Pellegrino, & Taylor (1993) demonstrated that "a positive link between income differences and migration flows is frequently sustained" in migratory patterns in Europe. Massey et al, (1993) added that one of the driving forces for human migration is pay inequality. The neoclassical theory only provides a partial explanation for migration decisions, despite being a significant driving force. Numerous people's dissatisfaction with the neo-classical explanatory theory has given rise to a brand-new theoretical concept. In order to create an interplay of people's motivations, this theoretical concept has developed a better paradigm that supports neo-classical theory. Labour will be less scarce at the destination and scarcer in the sending region as a result of migration. As a result of this "component price equalization" process, wages in sending and receiving areas will increasingly converge (Todaro, 1980). Capital is anticipated to shift from the region that loses population to the region that gains population (Massey et al., 1993). The human capital theory of migration, a macro-level model of individual decision-making, can be applied to the neo-classical macro-level explanation (Kurekova, 2011).

A reasonable person who migrates to maximize their benefits is analyzed under the human capital theory (Li, Wang, Segarra, & Nan, 2013). In addition, rural-urban migration is caused by an imbalance between demand and labour supply in the receiving and sending communities, as well as geographical disparities in supply and demand that affect wages in labour-rich versus capital-rich places (Kurekova, 2011; Wiesböck et al., 2016). As long as predicted urban income surpasses expected rural income, rural-urban migration will (Todaro, 1969). Due to this, the creation of remittances has become a potent incentive for communities of migrants to adopt migration as a means of diversifying their livelihoods, and as a result, the remittance-receiving areas are able to reduce income disparities and wage gaps and have begun to view remittances as a replacement for domestic income (Abizu, 2018)

1.4 New Economic theory of Labour Migration

One of the earliest theoretical approaches to immigration policy linked to economic interests was the New Economic Theory of Labour Migration (NELM), which emerged in the 1980s and 1990s as a critical response to the development of neo-classical migration theory (Porumbescu, 2015). The neo-classical paradigm, which was deemed

to be too individualistic and rigid to handle the complex and varied reality of migration and development relations, is rejected by the new economics of labour migration theory

(Porumbescu, 2015).

Neo-classical theory, which exclusively focuses on a person's intention to migrate, is challenged by NELM, which was established to address those assumptions and findings. According to NELM, the majority of migration in developing nations can only be understood as a decision taken by a household or family as opposed to an individual. Its focus is on how individuals move from the micro level to the macro level, such as within homes or any other culturally defined sects (Wickramasinghe & Wimalaratana, 2016). Instead of the migrants trying to maximize their income, the migration decision results in income diversification (for example, remittances). The NELM's central thesis is that moving is not always an individualized decision but rather one that is made by the household (Xu, Cao, Cao & Liu, 2018). Household members cooperate in order to maximize and diversify their income as well as to lower the risk associated with market failure. This innovative method enables the incorporation of factors other than maximizing individual wealth as a deciding factor in migration.

Most of the time, migrants and household heads decide together on the migration process, and thus the costs and benefits are split among them (Porumbescu, 2015). In developing countries, household heads rather initiate the migration decision of the household member to migrate, and the outmigrant sends remittances to the family back home in order to support their needs and invest in wealth acquisition (Gelb & Krishnan, 2018). The group position of the households has not exceeded the pay differential assumptions of the neoclassical theory. The function of the households under the NELM has underlined that remittance acts as part of the mutually advantageous link between the out-migrant and the household leaders or members; therefore, it should be noted that salary differentials and household decision-making are not mutually incompatible (Wickramasinghe and

Wimalaratana, 2016).

According to the NELM theory, households that move members to the diaspora or other places outside their home don't just want to maximize their income; they also want to compare it to other household incomes in their community (Stark, 1991). When choosing a job location for their members in the diaspora, household heads are likely to consider

income differentials and the migrant's location as important but not just a mere movement of their household members to any other place (Zhang, Tao, Zhao, & Xu, 2017). Because of this, NELM theorists emphasize labour rather than the migrant's performance, which was developed in neo-classical theory as a pooled family resource that has become a crucial criterion (Gurieva & Dzhioev, 2015; O'Reilly, 2015). Due to the fact that NELM is a micro-level theory that is applied to all types of migration, it is unable to explain long-term global migration patterns and trends or how these relate to more general development processes.

The neo-classical approach, which emphasizes individual agency, and historical-structural approaches, which in various ways emphasize the role of larger structural constructs and arrangements that regulate or restrict migratory decisions, were combined to create NELM (Abreu 2010). Both hypotheses are based on the "assumption of homo economicus" and fall short of providing a thorough justification for why individuals migrate (Abreu, 2010). Analyzing a multi-dimensional reality like migration is impossible without integrating a multi-disciplinary approach. Neoclassical migration theory and the New Economic Migration Model (NELM) ultimately seek to explain migration through economically driven choices made by individuals or households, but they ignore how even the ability to choose is governed and constrained by larger policies, politics, and interactions. Labour migration cannot be fully explained by a single theory of migration; hence, any response to the question of why people migrate must be contextualized within multidisciplinary methods that are cohesive of both objectivist economic theories and more constructivist and subjectivist approaches (Abreu, 2012; Massey et al., 1993). As a result, the theories offer insufficient justifications for migration since they are unable to take into account the intricacies of movement.

NELM maintains a steadfastly individualistic methodological stance while shifting the emphasis from the person to the home level (Abreu, 2012). Although NELM expanded the level and unit of analysis, the fundamental presumptions of the neo-classical equilibrium remain. Migration is based on rational decision-making (by the individual or the family), and it is driven by utility-maximizing choices to better economic status either through the probability of pay disparity (as in the neoclassical model) or through income and market access diversification (as in the NELM model). Both theories have the same flaws and try to narrowly explain migration as a decision made by people and households that maximize their own utility (Abreu, 2012). This results in an insufficient explanation for

why people migrate, as it ignores the structural influences and power dynamics that affect and limit migration and therefore cannot be disregarded.

1.5 Justification and Significance of the study

The nation's socio-economic activities place a high priority on fishing, which increases employment chances for those living near the country's coast and inland waterways (Bank of Ghana, 2008). Marine and freshwater fisheries are the two main types of fishing practiced in Ghana. By combining the output from industrial and canoe fishing, the value of the capture of marine fish is estimated. The value of freshwater fish production is the total of the production from the Volta Lake and other inland bodies of water. All coastal and inland water bodies in the nation are used for artisanal fishing, which can be done with little to no prior experience. An estimated 70–80 percent of the nation's fish harvest comes from artisanal fishing in the country.

Rural resident migration to urban regions can have a significant impact on the nation's fish output and distribution. In order to protect the national fishery, it is necessary to restrict the labour force, mostly children and adults, in coastal areas. Since their emigration to urban areas has a detrimental impact on the production of fish, proactive steps must be taken to reduce the negative impact of the labourers who work in the fishing industry and other related fields in the nation, giving special attention to the rural areas. To improve the living conditions of fishing communities, policymakers should implement policies that will both sustain the industry and attract new entrants. It is impossible to undervalue the importance of artisanal fishing to the national economy in terms of ensuring food security, creating jobs, and sustaining livelihoods. For this reason, the study will focus on key players like chief fishermen, fishmongers, and household heads of out-migrant fishing homes.

1.6 Objective of the Study

The objective of the study was to examine the effect of rural-urban migration on labour in the fishing industry in keta Municipality.

1.7 Research Question

What are the effects of out-migration on labour availability in the fishing industry?

2. RESEARCH METHODOLOGY

Mixed method research approach was adopted for the study. The population of this study comprised out-migrant fishing household heads, chief fishermen, and fishmongers in the study region were therefore the main focus because they had a thorough understanding of the objectives of the research. Self-selection sample technique was used to select 255 outmigrant out of 400 fishing homes for the study. As shown in table 1.

Table 1: Distribution of Participates and Sampling techniques used in the study

Communities or Towns	Zone	Out-migrants Household Identified	Sampling Size selected	Sampling Techniques
Tegbi,	Southern	92	55	Self-selection sampling
Dzelukope	Southern	93	45	Self-selection sampling
Anyako	Northern	118	87	Self-selection sampling
Atiavi	Northern	97	68	Self-selection sampling
Total		**400**	**255**	

Source: Authors Construct.

Self-selection sampling is a non-probability sampling technique that relies on the researcher's judgment. Self-selected sampling is a sampling technique in which the respondents themselves choose whether or not sampling units are included or excluded from the sample, either explicitly or implicitly (Creswell & Creswell, 2017). The main instrument for data collection were questionnaire, interview, focus group discussions. Both Open-ended and Closed-ended questions questionnaires were administered. Open-ended questions were administered to the respondents with the help of the field assistant, who assisted the researcher in translating the questions into the local language of the people (Ewe). Closed-ended questions were equally administered, and they required the participants to select appropriate responses from the choices provided. The semi-structured interview guide was generated to solicit data to cross-validate the questionnaire and vice versa (Teye, 2012) and to offer broader and more detailed information on the subject matter (Turner, 2010) to give detailed information on the study and helps provide thematic words to explain quantitative data from the questionnaire. The addition of FGD to solicit views on the objectives of this study was appropriate for cross-validating data, clearing contradictions from interviewees on the spot, and explaining the complexities of the problem from knowledgeable people on the subject (Alshenqeeti, 2014; Flowerdew & Martin, 2005). There were four focus group interviews held in the two selected zones in the study area. a session with male

fishermen and female fishmongers in each community within the two zones. Each group shared views on the effect of rural urban migration on labour availability.

The data obtained was analyzed quantitatively using the Statistical Package for Social Science (SPSS) version 20 software and Microsoft Excel. The data collected from the respondent was analyzed using descriptive and inferential statistics, which were provided as a frequency distribution table, percentage, pie chart, and bar graph. The first objective, the effect of rural-urban migration on labor availability in fishing, was analyzed by determining the correlation between the number of migrants per household and labor availability using Pearson product-moment correlation. The qualitative data entry and analyses was done by the use of both descriptive and interpretative techniques based on the themes arrived at in the data collection. This was based on questions on the semi-structured interviews and focus group discussion. Interviews and focus group discussion were transcribed and responses used in analyzing the study.

3. RESULTS AND DISCUSSION ON EFFECT OF OUT-MIGRATION OF LABOUR ON FISH PRODUCTION

This section presents the findings regarding evaluation of labour availability before and after migration with its effect on fish production in the study area.

3.1 Evaluation of labour availability before and after migration

In order for the researchers to compare the effects of labour efficiency before and after migration, household member movement was evaluated through the help of the household heads. According to table 2, a larger percentage of respondents representing 58.0 percent indicated that the labour market before emigration was very good, 16.9 percent said it was good, and 25.1% said it was fair. This shows that, there was a strong labour support in the research area, which facilitated the expansion of fishing and income generation. The survey revealed that the presence of these workers in the local fishing sector contributed to its growth before emigration.

> *"My children were my biggest blessing since they were always there for me whenever I needed. My son helps me in fishing while my daughter does the selling. This gave me the money I needed to replace some damaged fishing equipment, but since they left, my business has been in peril because I am left alone to handle all tasks on my own without any help from anyone. Again, I can't accomplish anything at this time because of my age".*

(A 52 years old household head at Dzelukope,)

"Labour supply was very good, our household members help us in mending our nets, patching of our canoes among others. Labour was actually in excess which boosted the fishing business"

(A focus group discussion with some household heads at Anyako)

Again, from Table 2, more than half (58.8 percent) of the respondents were of the view that, emigration has decreased labour availability greatly, while 17.6 percent of them said labour availability after emigration has decreased slightly. A total of 19.6 percent responded that, labour is still the same even though some have migrated out and as little as 3.9 percent said, though there is labour emigration, labour has increased slightly. The study identified that, in the absence of family labour, it is very difficult to secure hired labour to facilitate fishing activities, especially in net mending and canoe patching. This is because smallholder fishermen and poor households are unable to pay for hired labour due to financial constraints.

"Although there is some labour available, it is inaccessible owing to budgetary limitations. When we organize the money to pay the available labourers, it will be too late for their aid because their rates are higher than what we can afford"

(A focus group of some household heads at Tegbe)

"Am loaded with a lot of work ever since my sons migrated to Accra. I have to hire extra labour to assist me but the money for such hiring is not available. They charge more than what I can afford which has resulted in the reduction of fish production"

(56 years old household head at Anyako)

Figure *1*: Picture of one-on-one interview with one fisherman at Anyako

Table 2: Labour evaluation before and after migration

Before			**After**		
	Frequency	**Percentage**		**Frequency**	**Percentage**
Very Good	148	58.0	Decreased Greatly	150	58.8
Good	43	16.9	Decreased Slightly	45	17.7
Fair	64	25.1	Still the Same	50	19.1
Total	**255**	**100**	Increased Slightly	10	3.9
			Total	**255**	**100**

Source: Household Survey, 2020

3.2 Out-migrant involvement in fish production before migration

Although fishing and its related activities, such as fish mongering, canoe patching, and net mending, were the primary occupations of the household members, some also worked in irrigational farming and subsistence farming. In the research region, people living at the north practice subsistence farming, while those living in the south are irrigational farmers.

In total, 642 out-migrants were recorded in survey for both male and female.

Normally, the males go on fishing while their female counterpart does the selling of the fish but in the study area, some females were also involved in the fish catch while some males also did the selling of the fish alongside the fish trapping or fish catch. From table 5.2, a total of 32.1 percent of the out-migrants were involved in fishing only as reported by the household heads, 23.8 percent were involved in fish mongering only while 17.9 percent were involved in both fishing and mongering. From the respondents, 14.8 percent were equally involved in fishing and

net mending and 9.8 percent of the out-migrants were involved in fishing and canoe patching. As little as 1.6 percent were involved in all the activities thus fishing, fish mongering, net mending and canoe patching. Since these family members moved away, the older and the younger members of the household who make up the majority of the people left behind have been overloaded with the work those emigrants use to offer. According to survey findings on out-migrants' participation in fishing activities, fishing and its related activities are the major source of income and subsistence for a large percentage of household members owing to the fact that the research region is purely a fishing community.

"We don't require any formal education before fishing because it is a generational inheritance passed down to us from our great-grandmothers which has maintained us to this day. The primary issue we are currently facing is the exodus of our young people who use to assist us moving out of the community. They supported us in all kinds of jobs that we give them instructions for and are incredibly spirited. Their engagement in the local fish industry increased our profits, but now everything is in danger"

(a focus group discussion for some selected chief fisher at Atiavi)

"All of my sons (3) who were assisting me have moved to Accra, leaving me to handle all fishing-related tasks alone. I'm not getting any younger, my strength is getting weaker, and I can't work as hard as I used to do. My son's relocation has significantly lowered production because I am unable to engage more labour to help me. Although some cash remittances are received, they are insufficient to pay for more labour"

(61 years old household head at Atiavi)

. **Table 3: Migrant's involvement in fishing and its related activities before migration**

Activity	Frequency	Percent
Fishing only	206	32.1
Fish mongering only	153	23.8
Fishing and mongering	115	17.9
Fishing and net mending	95	14.8
Fishing and canoe patching	63	9.8
All activities	10	1.6
Total	**642**	**100**

Source: Author's Household Survey, 2020

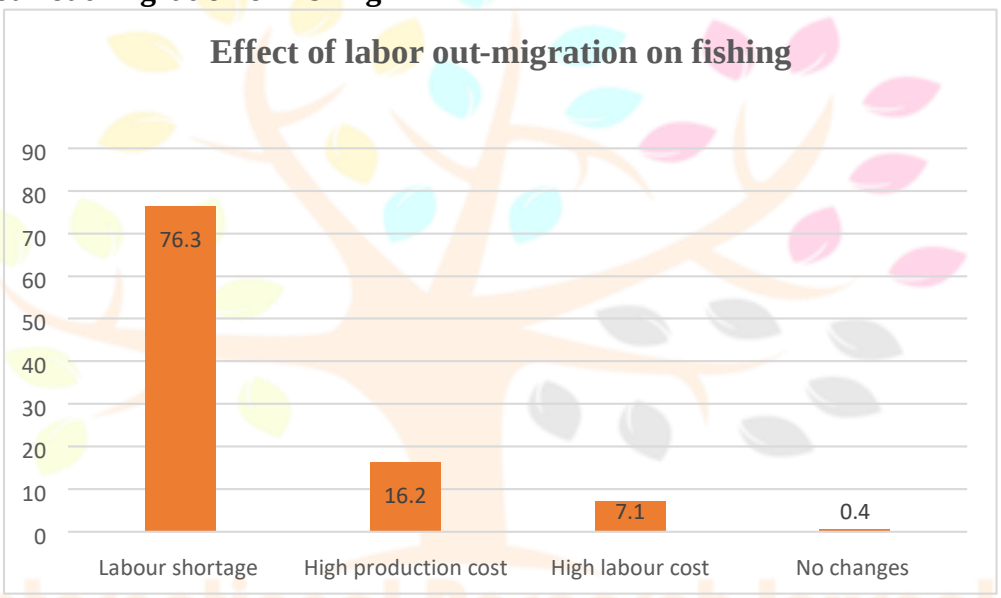
3.3 Effect of labour out-migration on fishing

The majority of household heads confirmed that, emigration of their household members had a significant impact on fish production in the household and the community as a whole. More than half, 76.3 percent, of the respondents said that emigration of their household members has led to a labour shortage in fishing. The migrated household members played a vital role in fish production in the household and their departure has led to a great labour gap in the local

fish industry. In Figure 1, 16.2 percent of the respondent said labour outmigration in their household has yielded high production costs resulting in high investments in fishing. Few respondents, 7.1 percent believed that, out-migration of their household members has increased labour costs, resulting in low fishing investment, and as little as 0.4 percent could not identify any issue with labour out-migration in the fishing households.

> *"My sons used to help me mend my net and patch the holes in my canoe so I could go fishing. As a result, I was able to get ready for fishing in a timely manner. However, because they are no longer available to provide such support, I am finding it more challenging to enlist the help of others. Despite being offered, they are not even easily accessible, and the accessible one costs more."*
>
> *(A 48 years old man at Dzelukope, individual interview)*

Figure 2: Effect of labour out-migration on fishing



Source: Authors Household Survey, 2020

3.4 Management and Adaption of labour out-migration in fishing

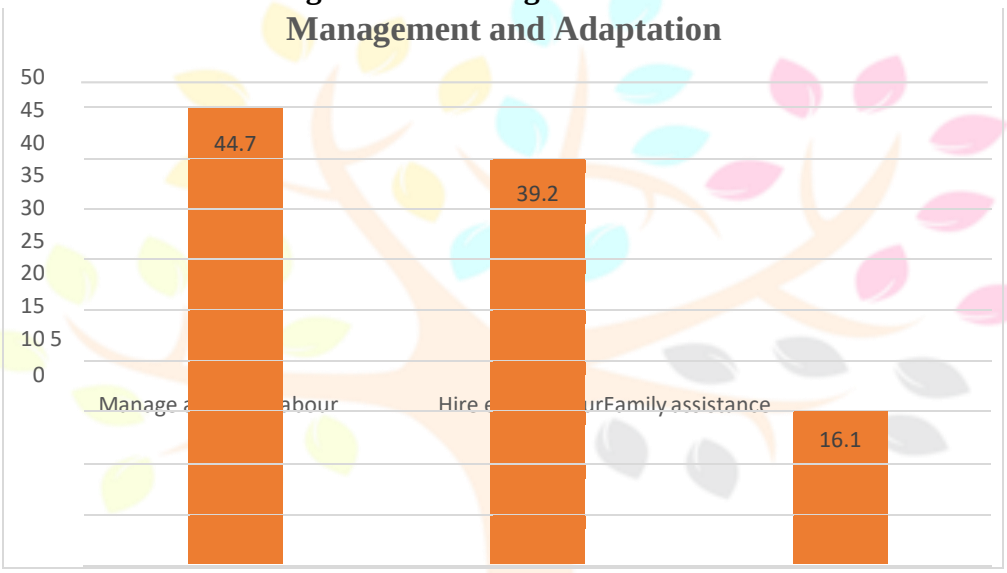
In an attempt to manage the impacts of labour out-migration which has resulted in a decline of fish production in the study area, a little close to half, 44.7 percent of the respondents depended on the available labour thus the rest of the household members as showed in figure

5.2. About 39.2 percent of the respondents hired extra labour to support their fish production. According to the respondents, the labour they hire sometimes charges more than what they can afford hence just one or two labour is hired leading to low production and efficiency.

Few, 16.1 percent of the respondents seeks family and friends' assistance in the course of their work. This labour constrains affect the quantity of fish available at the market since most the migrants were helping in the industry before migration.

> *"The fish we sell especially crabs, common carp, catfishes and tilapias are not always available to purchase. Most of the fishermen have stopped fishing for such fishes so we have to buy from the neighbouring communities at a high cost. All these is ascribed to the labour emigration of our fishermen"*
>
> *(41 years old fish monger at Tegbe)*

Figure 3: Management of labour out-migration in fishing



Source: Authors Household Survey, 2020

The general implication of this result is that fishing in the study area will entirely collapse in the absence of family labour and hired labour, which are the only sources of labour available to replace the lost labour in fishing. This result backs up Maharjan, Bauer, & Knerr (2013), study on labour migration and its effects on fish production, which found that, households with outmigrant members use hired labour for fishing activities significantly more often than nonmigrant households due to the absence of a household member. The use of additional labour for household fishing operations will increase costs, which household heads frequently choose to overlook.

3.5 Percentage of labour reduction according to gender by household heads

As stated by Blynova Popovych, Semenova, Kashyrina, Ursulenko, & Kononenko,. (2020), labour for agriculture especially in fishing has become very scarce due to out-migration of labour in the act. It was under this premise that gendered views of labour shortage in fishing was explored. Household heads were asked to rate their views on how

labour out-migration has affected household fishing. This was done along male and female household heads within the study area to see how out-migration of individuals in the household has affected fishing. With regards to the male household population of 160, 36.9 percent said labour in fish production has decrease greatly ever since their household member emigrated, followed by 26.3 percent who also said, the movement of their household member has decrease fish production slightly. Within the same male population, those who said labour has increase greatly even though there is labour outmigration were 10.6 percent while 7.5 percent were of the view that labour has increase slightly regardless of labour out-migration.

A similar observation was made for the female household heads population of 95 in totality to seek their views on how out-migration of labour has affected fishing in the area as done in the male household head population. From table 5.3, 38.9 percent of the female household heads said labour in fish production has decrease greatly followed by 25.3 percent who think the decrease was just slightly. Within the same female population, those who said labour has increase greatly even though there is labour migration were 6.3 percent while 9.5 percent of the female household heads were of the view that, labour has increase slightly regardless of labour out-migration of household member.

The overall implication was that labour availability in fishing has decreased greatly and could be attributed to many factors including labour emigration with several reasons and the non-attractive nature of fishing in recent times. This assertion however supports the chisquare test that, there is significant association

($\chi 2 = 2.348$, df = 4 and p-value = 0.006 < 0.05) between labour for fishing and one's gender.

> *"During my younger age, I accompanied my father to the seaside and go on fishing with him. Whenever my father needed additional help, a lot of people would show up and work for free; all that was required of these labourers was food and water. But in today's world, if you don't have the money to pay workers, nobody will volunteer to help you out when you need extra hands in fishing. This is because major cities, both domestically and abroad, have snatched up the local labour force with attractive incentives. The majority of these outmigrants are engaged in other jobs other than fishing to supplement their income in their various destinations"*
>
> *(A 45 years old household head at Dzelukope)*

Table 4: Percentage of labour reduction according gender

Fish labour availability	Gender N (%)		Total
	Male	Female	
Decrease greatly	59(36.9)	37(38.9)	96(37.6)
Decrease slightly	42(26.3)	24(25.3)	66(25.9)
Still the same	30(18.8)	19(20.0)	49(19.2)
Increase slightly	12(7.5)	9(9.5)	21(8.2)
Increase greatly	17(10.6)	6(6.3)	23(9.0)
Total	**160(100.0)**	**95(100.0)**	**255(100.0)**

Source: Household Survey, 2020 **($\chi 2 = 2.348$, df = 4 and p-value = 0.006 < 0.05)**

3.6 Relationship between out-migration and labour availability

Pearson product-moment correlation was conducted between number of out-migrants per household and labour availability. This was to identify the relationship between the two variables. The correlation assessment found that, there was inverse association between the number of out-migrants per household and the supply of labour, $r = -0.11$, $N = 255$, $p < 0.01$, indicating high number of out-migrants with low labour availability as in Table 5 below. The household members who helped in fishing migrated to the urban areas or neighboring countries. Research conducted in the Northern part of Ghana by Adaku (2013), supported that out-migration affects food production due to its resultant of labour shortage.

Table 5: Correlation between number of out-migrants per household and perception of labour availability

Correlation			
		Number of migrants per household	**Labour availability**
Number of migrants per household	Pearson correlation	1	-0.113
	2-tailed		0.112
Labour availability	N Pearson correlation	255 -0.113	255 1
	2-tailed	0.112	
	N	**255**	**255**

Source: Household Survey, 2020

Migration and labour availability are closely connected and rural out-migration of labour can adversely contribute to development of fishing industry in the country especially in rural areas (Bhandari & Reddy, 2015). The impact of rural out-migration on the availability of labour for fishing activities is also necessary for maintaining fish production level or improving fish production activities.

More than half, 87 percent of the respondents in the study revealed that, out-migration has caused a decrease in labour availability. This has resulted in low fish production since more than half 80.3 percent of the out-migrants were involved in fishing before migration.

The implication of the reduction of labour in fishing is the burdening of work on the female household members as well as the aged and very young ones in the households. Bhandari and Reddy (2015), also supported that, the workload of females in the out-migrant households increased considerably when there is labour out-migration since male dominance in migration is high. This phenomenon has direct implication on education, health, economic activity and

psycho-social effects on children left behind by some migrants who were parents. They are denied of the right to education and also exposed to health hazards.

Also, the educational status of the people who were left to assume household head standings was very low. About 32.2 percent of them have no formal education, and few 7.5 percent of them have only Basic School education but majority 53.8 percent had education up to Junior high school. This study revealed that there is a reduction of labour in fishing in the study area. Consequently, canoes abandoned by the out-migrants were sold out to people who intend use it as fire woods for smoking of fishes and as a fuel for household usage. It was also confirmed by the household heads that returned migrants find it difficult to get canoe and it related materials for fishing since their fishing materials such as net and canoes left behind has been diverted into different avenue. Therefore, those with the means re-migrate or totally abandon fishing and divert to non-fishing income enterprises. This prevents them from continuing with their fishing activities and also cause them to prevent their energetic young ones from coming back whiles they send more of such people out to urban centers.

4. CONCLUSIONS

The study found out that, the rural-urban migration in the Keta Municipality especially in the study region was initiated by the push-pull factors which support the neoclassical theory of migration. It was also identified that, to maximize income and diversify livelihood strategies, the young people in the study area migrates to urban areas and nearby nations to enhance their standard of living which also confirms the postulations of NELM theory. The findings again confirm that, outmigration has effects on fish production as well as labour in the study area. These effects are in the form of labour shortage leading to low production in fishing, translating to low-income generation by fisher folks.

5. RECOMMENDATIONS

fishermen and women should be given some financial support from Government, NGO's, Fishery Commission and other donor agencies to help expand and strengthen their fishing operations. This will encourage new entrants into the fishery sector and improve it continuity in its engagement at the local fish sector. Financial assistance or relief

provided for them will reduce the burden on labour out-migrations by a way of maintaining the labour availability in the sector.

Again, providing formal and informal educational facilities and fishing inputs as subsidies can help the local fishing industry get a better understanding of its own industry. To improve fishing, fishing inputs like nets, canoes, out-board motors, and premix fuel should be made available and easy to purchase to enhance fishing operations. Fishermen and women should receive informal education so they can learn new skills and understand the need to fully observe the government's closed-season regulations as well as how to improve their fishing operations. The Volta Basin Research Project (VBRP), the Ministry of Fisheries, the Fisheries Department (FD), and the government should all share responsibility for finding answers to the difficulties that the fishing community is currently experiencing.

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